



# **Using Colilert<sup>®</sup> to Monitor the Impacts of Wet Weather Pollution Sources**

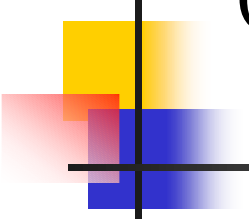
***E. coli* Method Comparison  
Colilert<sup>®</sup> vs. Membrane Filtration**

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Ohio River Valley Water Sanitation Commission**



# *E.coli* Method Comparison

## Colilert<sup>®</sup> Method vs. Membrane Filtration

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- ORSANCO has conducted two studies using both methods
  - Colilert<sup>®</sup> method was chosen to help ease the burden of the numerous bacteria samples
  - US EPA has accepted this method for use in drinking water programs, but not for ambient monitoring or NPDES purposes



# IDEXX Colilert<sup>®</sup> Method

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- Standard Methods MPN Approach
- Presence/Absence or Quantification
- Test Methods
  - Colilert<sup>®</sup>
    - ✓ total coliforms & E. coli
  - Enterolert<sup>™</sup>
    - ✓ enterococci

## Figure 3: IDEXX Colilert® Method for *E. coli* Analysis



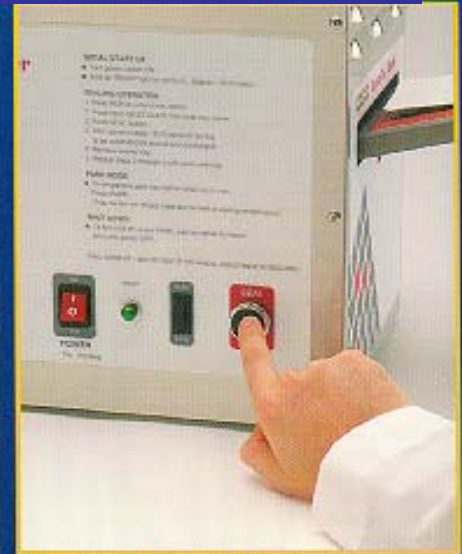
1. Add Colilert to 100ml sample and mix



2. Pour sample/Colilert mixture into Quanti-Tray



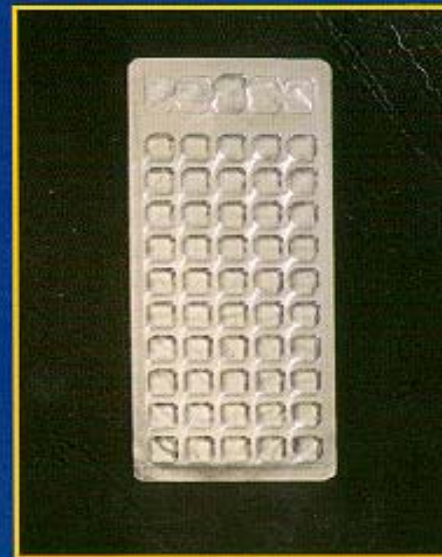
3. Put filled tray into sealer



4. Press seal



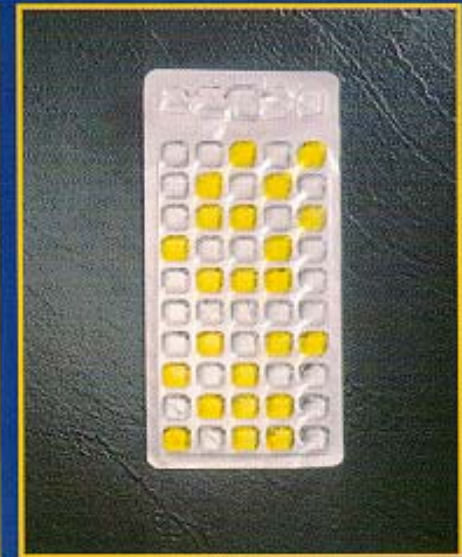
5. Allow sealer to retract and eject tray



6. Remove sealed tray



7. Incubate



8. Read results and refer to MPN table

- Sample is divided into 51 isolated and sealed wells for optimal accuracy



Patent pending  
IDEXX, Defined Substrate Technology, and  
Colliert are registered trademarks of IDEXX  
Laboratories, Inc.

Quanti-Tray, Quanti-Tray Sealer, and Colliert-10  
are trademarks of IDEXX Laboratories, Inc.

#### Technical Specifications

Weight: 52 lbs.

Dimensions: 14"H x 12"D x 20.5"W

Power: 110V (WQTS-110), or (WQTS-220)

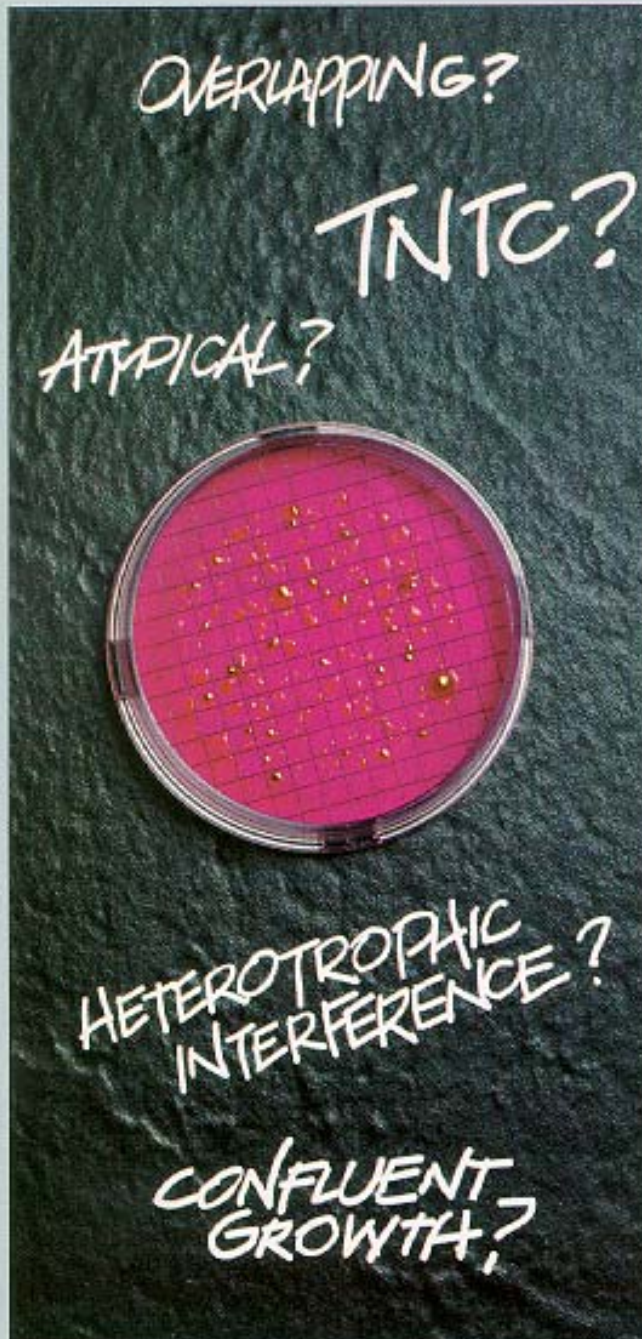


**Read Quanti-Tray results**  
*(counts from 1 to 200).*

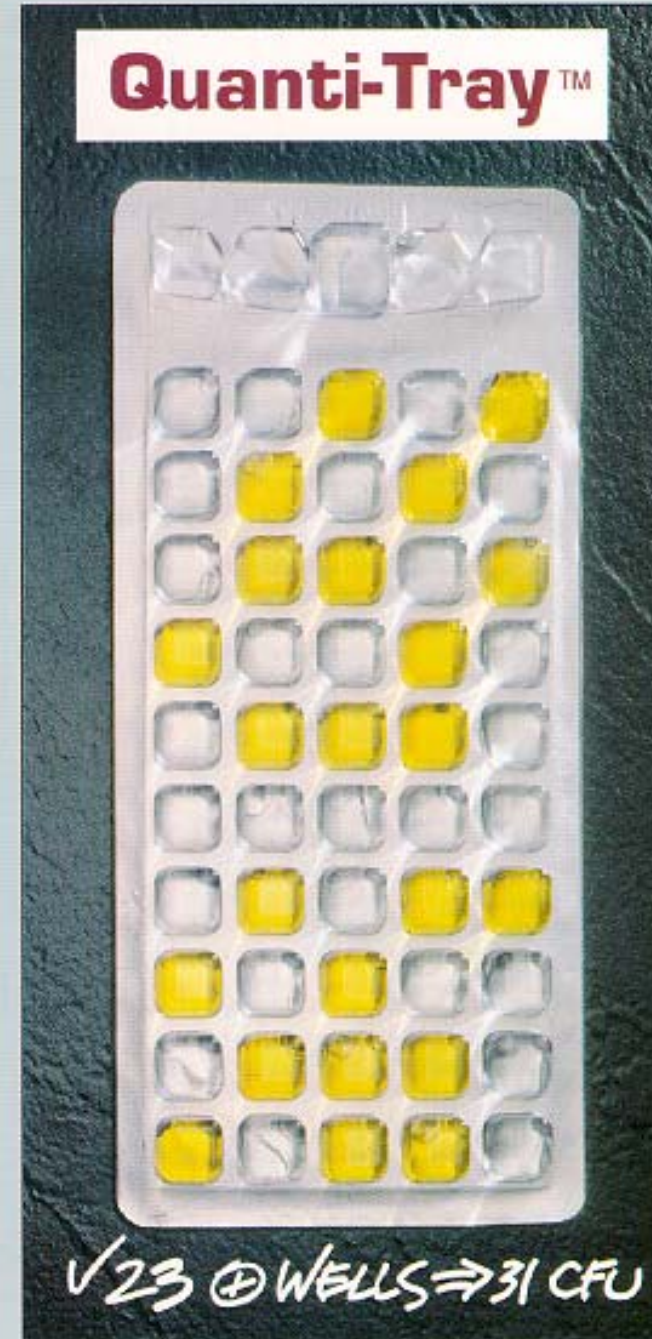


**Read Quanti-Tray/2000 results**  
*(counts from 1 to 2,419).*

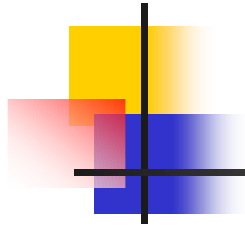




31 CFU Sample



23 wells corresponds to MPN of 31 CFU sample

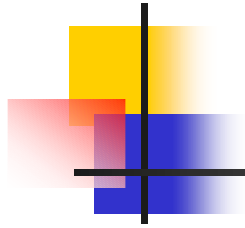


# Colilert<sup>®</sup> Benefits

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- Test Procedure
  - 1 minute hands-on time
  - no media preparation
  - no dilutions for counts <2,000
  - no glassware
  - no pipetting
  - incubate 24 hours at 35°C





# Colilert<sup>®</sup> Benefits

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- Interpretation of Results
  - colony counting eliminated
  - no subjectivity (atypical, overlapping)
  - no confluent growth
  - heterotrophic interference minimized
  - detects down to one organism per 100 ml



# Colilert<sup>®</sup> Benefits

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- Cost
  - reduced labor
  - tray ~\$1 per sample
  - Substrate ~ \$3-4/test
  - sealer (~\$3,000)



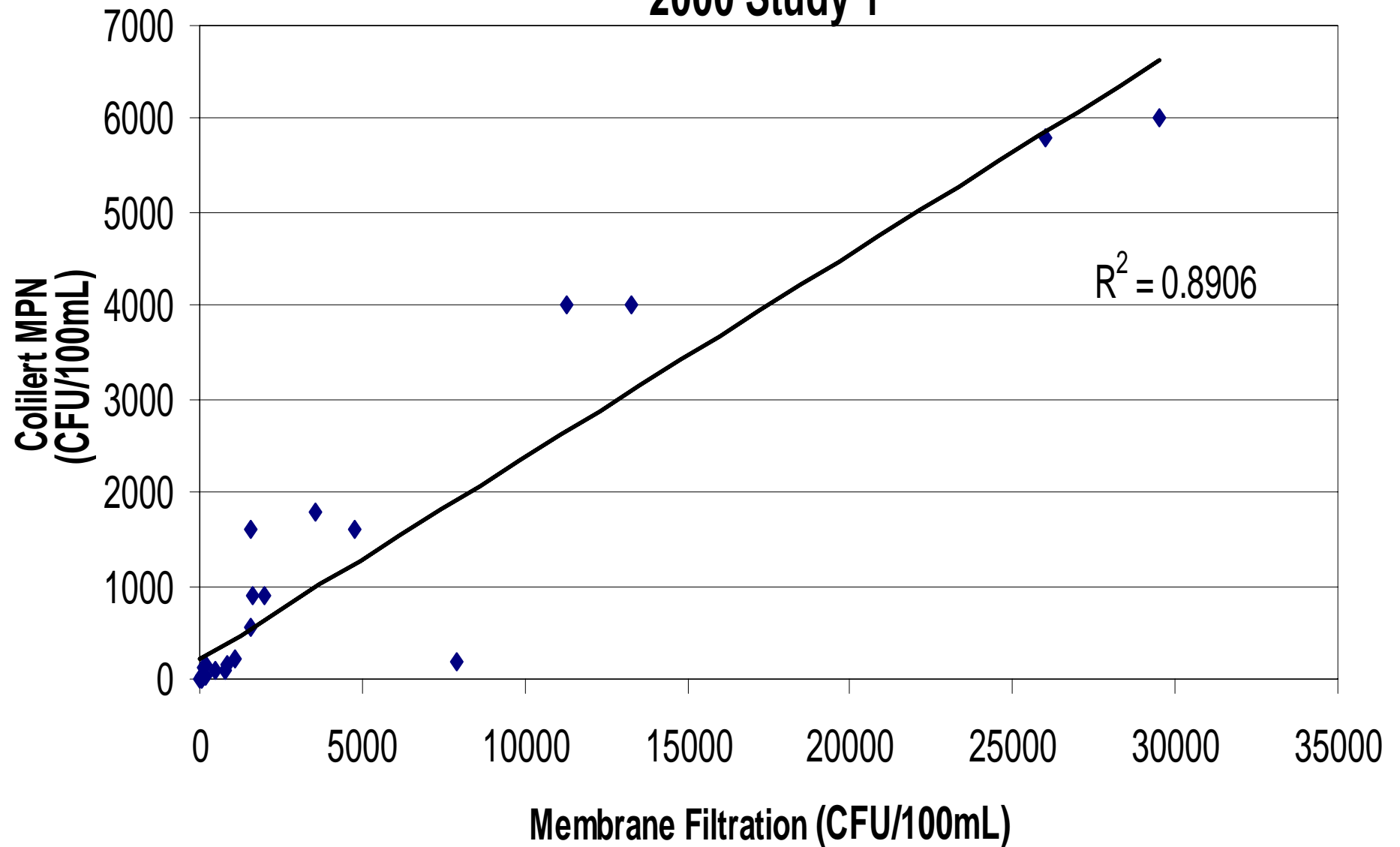
# Bacteria studies

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- Both studies used the colilert method to analyze the samples
- Duplicates of ten percent of the samples were also analyzed by the traditional method – membrane filtration
- Results were compared from the two methods to determine if the Colilert<sup>®</sup> method would produce acceptable results

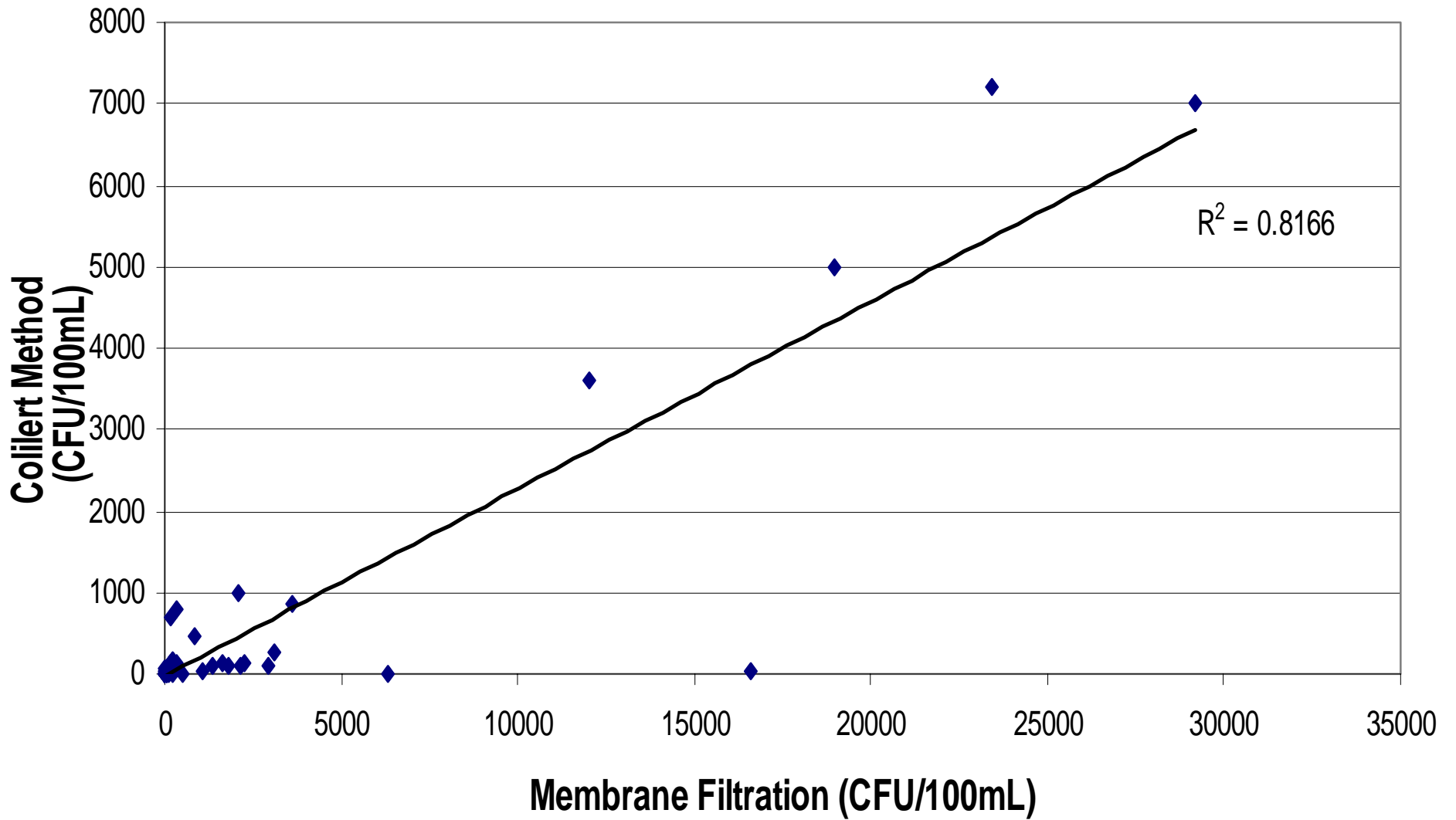
# Colilert Method vs Membrane Filtration Correlation

## 2000 Study 1



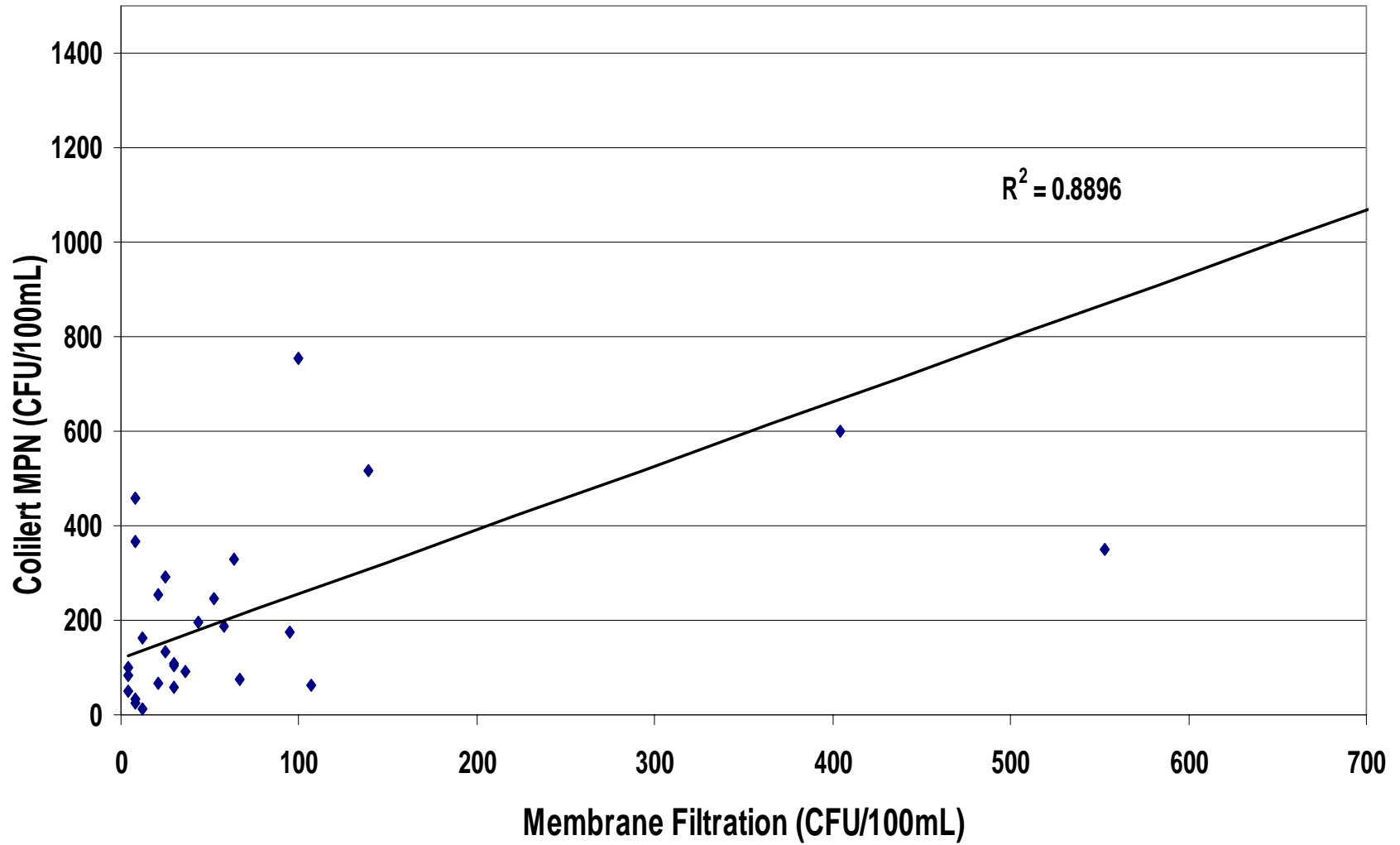


## 2001 Study 1



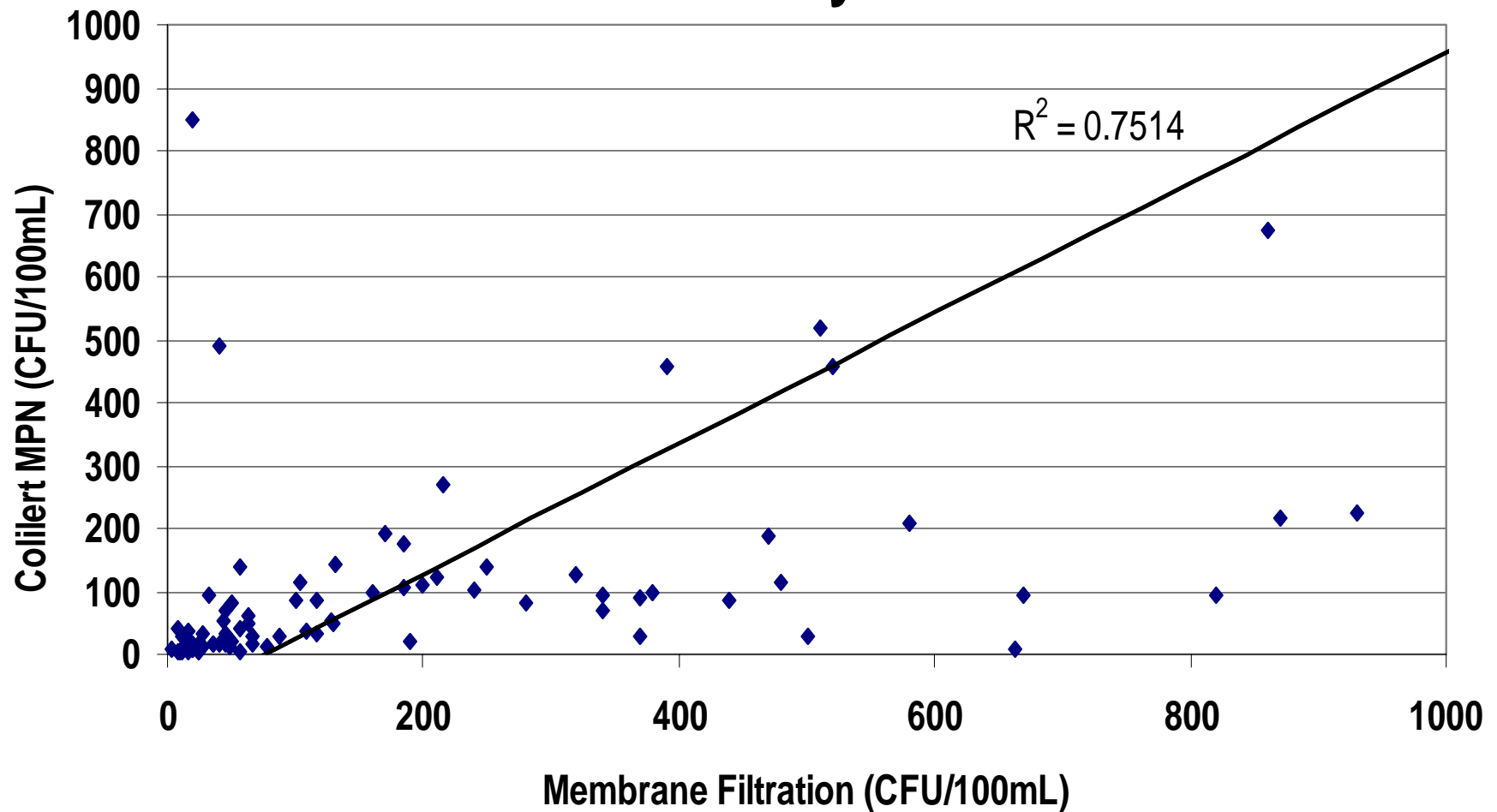
# Colilert Method vs Membrane Filtration Correlation

## 2000 Study 2



# Colilert Method vs Membrane Filtration

## 2001 Study 2





# Comparison Results

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- Results were obtained from two studies conducted from two different cities
- The comparison indicated a high degree of agreement